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ABSTRACT

The author reports on a study designed to determine the effects of figurative language--particularly the metaphor--on persuasive discourse, by comparing hypotheses developed from the theories of Michael Osborn, Jean Piaget, and Charles Osgood. In addition to a figurative language variable (metaphor versus literal), other variables in the study were: (1) credibility (high versus low); (2) explanation (presence versus absence of a literal paraphrase of the metaphor); (3) trials (immediate and delayed posttests); and (4) vehicle valence (subject evaluation of the metaphoric vehicle relative to the evaluation of the metaphoric tenor). A single metaphor, in the form of a simple declarative sentence, was included in a written message of 212 words on the subject of Presidential campaign spending reforms. The author reports that the results did not reveal any statistically significant support for the experimental hypotheses, but did serve partially to evaluate the validity of several theoretical perspectives with regard to the rhetorical metaphor. (Author/RN)

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A TEST OF HYPOTHESES DERIVED FROM OSBORN, PIAGET AND OSGOOD, CONCERNING THE METAPHOR

a paper presented to the
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There is evidence that figurative language can be persuasive (Bowers & Osborn, 1966; McCroskey & Combs, 1969; Reinsch, 1971). A significant next question is "why?" This study was an experimental comparison of three explanations of metaphor's impact. Three theoretical positions were used to generate three different sets of hypotheses concerning the interaction of figurative language with other variables. The perspectives were derived from the work of Michael Osborn, Jean Piaget and Charles Osgood. Two hypotheses suggested by Bowers and Osborn (1966) concerning the effects of figurative language on source credibility were also included.

THEORETICAL PERSPECTIVES

Osborn

Osborn (1963) surveyed major trends in treatment of rhetorical metaphor from classical to modern times, reconsidering and extending several explanations of metaphor's effects. Perhaps his most significant contribution was a model of psychological response to metaphor. Osborn posited a three-stage response sequence consisting of error (the auditor's attempt to understand a metaphor literally); recoil (cognitive difficulty and rejection of literal interpretation); and resolution (insight into figurative nature and construction of lines of association between metaphoric subject and metaphoric item). Osborn and Ehninger (1962) explained the significance of this response chain as follows:

> A . . . source of power is to be found in the nature of the stimulus itself; and involves the degree of surprise or "shock" that a reader-listener experiences when he first confronts the relation alleged

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> to exist between subject and item for association. The more unusual or unexpected this relation--i.e., the greater the apparent semantic distance between subject and item--the more uncertain are the lines of association, and the greater the strain placed upon the associative threads necessary to hold the divergent elements together. Consequently, in a new or radical metaphor a state of high tension exists, and when this tension is suddenly relieved by insight into the intended meaning, the metaphor, like a taut bow string, drives the arrow of its intended meaning deep.

Attitude change would result then from consecutive states of tension (error, recoil) and tension release (resolution). For this study the error-recoil-resolution model was adopted as one theoretical perspective.

Piaget

Although Piaget has developed several concepts useful in explaining human reactions to stimuli he has not, to my knowledge, discussed the effects of figurative language. I have projected some of Piaget's ideas to construct an explanation of figurative language based on his work.

Piaget (1959) has defined equilibrium as "compensation resulting from activities of the subject in response to external intrusion." Equilibrium thus conceived is a relatively stable state continually reconstructed by the dialectical interplay of assimilation and accomodation. Piaget (1940) has defined assimilation as "thought by means of pure incorporation . . . in which egocentricity excludes all objectivity," and accomodation as "thought adapted to others and to reality." This means that stimuli are interpreted to fit an individual's schemas (assimilation), and that schemas are altered to account for stimuli (accomodation).

A metaphor is a spark which re-ignites the equilibriation process. It resists normal (literal) assimilation-accomodation, calling forth assimilation and accomodation of a more radical nature. Radical assimilation proceeds by summoning the increasingly more personal (egocentric) schemas of the individual's psychological history. In a passage similar to descriptions of metaphor response (Downey, 1919) Piaget (1923) has described the egocentric logic of such assimilation as follows:

> (1) Ego-centric logic is more intuitive . . . than deductive. The mind leaps from premise to conclusion

> at a single bound, without stopping on the way. (2) Little value is attached to proving . . . propositions. The vision of the whole brings about a state of belief. (3) Personal schemas of analogy are made use of. (4) Visual schemas . . . can even take the place of proof. (5) Finally, judgments of value have far more influence on ego-centric than on communicable thought (p. 66).

Such assimilation calls forth concurrent accomodation, which results in the alteration of definitional and attitudinal structures to account for the metaphoric stimulus. (Continued use of a trope so alters the schemas that the metaphor "dies.") Radical assimilation yields a crop of highly personal thoughts or images from which the accomodation process winnows the grain of socialized thought and attitude change. Thus, by inducing radical assimilation and accomodation, a metaphoric stimulus alters the psychological equilibrium of the perceiver. The assimilation-accomodation model was adopted as a second theoretical perspective.

Osgood

Osgood, in occasional references to metaphor, has been concerned with its psychological origins (Osgood, 1953, pp. 642-646; Osgood, Suci & Tannenbaum, 1957, pp. 20-25). He has viewed metaphor as an example of synesthetic thinking, defined by Karwoski, Odbert and Osgood (1942) as the "parallel alignment of two gradients in such a way that the appropriate extremes are related, followed in some cases by translation in terms of equivalent parts of the two gradients thus paralleled." Within this framework it did not seem inappropriate (see Osgood, et.al., pp. 200ff.) to suggest an explanation of metaphor's effects based on congruity theory.

Congruity theory argues that concepts may be assigned ratings on an evaluative scale and that pairs of concepts may be objects of associative or dissociative bonds. If concepts of divergent valence are associatively bonded congruity theory predicts converging changes in the valence of both concepts, unless the concepts are so divergent that the bond itself is denied ("incredulity factor," Osgood & Tannenbaum, 1955).

Metaphor is an asserted associative bond between two concepts. Assuming that the concepts are not excessively divergent the direction and relative strength of attitude change should be a function of evaluations of metaphoric subject and item for association. Attitude change would result from

appropriate choices of metaphoric items for association. The associative bond model was taken as third theoretical perspective.

THEORETIC RATIONALE AND HYPOTHESES

This study examined five variables: language (A); source credibility (B); explanation (C); trials (D); and evaluative tension (E). There were two conditions of language, literal and metaphor; and two levels of source credibility, high and low. "Explanation" referred to literal paraphrase of a metaphor following the trope; there were two conditions of explanation, presence and absence. There were two posttests, one immediate and one delayed, permitting the calculation of two change scores as the two trials. These four variables (A,B, C,D) constituted a 2 x 2 x 2 x 2 fixed-effects, repeated-measures factorial design. The fifth independent variable, evaluative tension, was measured rather than manipulated and occurred only under the metaphor condition of language. Evaluative tension scores were a measure of discrepancy between an auditor's evaluation of the metaphoric subject and his evaluation of the metaphoric item for association. The following discussion of experimental hypotheses is organized by variable rather than by theorist.

Language x Credibility Interaction (A x B)

One expects a message to produce more attitude change when attributed to a high credibility source than when attributed to a low credibility source. For this discussion it was also assumed that metaphoric language is usually more effective at inducing desired attitude change than literal language (although the associative bond model predicts undesired change if the metaphoric item is inappropriate).

Osborn

The error-recoil-resolution model includes as its initial stage the experience of being wrong. Assuming that an auditor does experience the event as error and assuming that his conception of himself is dissonant with that experience, Festinger's (1957) theory of cognitive dissonance may be used to predict the auditor's response. Of Festinger's three ways to reduce dissonance two seem potentially applicable, the alteration of a cognitive element relating to behavior (denial that one made an error, for example) and the introduction of new cognitive elements (the credibility of

the source, for example). Assuming that many subjects will--because their action is undeniable--select the second alternative, the question becomes what additional elements they will introduce. Two seem readily available: the credibility of the source, and similarities between metaphoric subject and item. If the receiver imputes high credibility to the source, this may serve as adequate justification (e.g., "I did it because he led me"). If the receiver imputes low credibility to the source the receiver should likely adopt the option of zealous resolution (e.g., "it's an easy mistake to make--a phone booth is like a confession box"). This suggests the following hypothesis:

H_{1a}: There will be a significant language x credibility interaction because the introduction of metaphor into a speech will have a greater desired impact under low credibility conditions than under high credibility conditions.

Piaget

In the assimilation-accomodation model attitude change represents a new attitudinal equilibrium. This equilibrium takes its final form in the process of accomodation which, as previously noted, involves adaptation to other people. But which people? In the rhetorical paradigm there are several possibilities: the message source, audience members, and reference persons who may not be in the audience. The success of a metaphor should increase as the source becomes a major referential other for the accomodation process. Measurements of source credibility should provide one indication of the source's standing. High credibility implies that the source is a relatively important reference person; low credibility, that the source is less important. This analysis suggests the following hypothesis:

H_{1b}: There will be a significant langauge x credibility interaction because the introduction of metaphor into a speech will have a greater desired impact under high credibility conditions than under low credibility conditions.

Osgood

The associative bond model contains an "incredulity factor" indicating that auditors may sometimes deny an asserted associative bond. Any metaphoric assertion should be somewhat difficult to accept for all persons and quite difficult

for some persons. Whether or not an auditor succeeds in denying a bond should depend in part on the credibility which he imputes to the source. Low credibility should permit denial of a bond more frequently and more easily than high credibility. This analysis yields the same hypothesis (H_{1b}) as the assimilation-accomodation model.

Language x Explanation Interaction (A x C)

A literal paraphrase of a metaphor is to some degree a prose argument (Herschberger, 1943). The addition of such a paraphrase to a speech should normally be expected to enhance desired attitude change.

Osborn

The error-recoil-resolution model implies that the amount of attitude change is related to the degree of tension experienced; greater tension, at least up to a point, should yield greater desired attitude change. A literal paraphrase immediately following a trope should cut short the error-recoil stages and thus relieve the tension for auditors to whom the trope was not immediately clear. This should reduce the amount of attitude change in those auditors. The following hypothesis is suggested:

H_{2a}: There will be a significant language x explanation interaction because a literal speech including a metaphor paraphrase will be more effective in producing desired attitude change than a literal speech without a paraphrase, while a metaphor speech with paraphrase will be less effective than a metaphor speech without paraphrase.

Piaget

The assimilation-accomodation model suggests that metaphor response includes radical assimilation. This assimilation is guided by an egocentric logic where "the vision of the whole brings about belief," that is, a state of uncritical acceptance is induced. An "explanation" following a metaphor should reinforce the effect of the metaphor while the receiver is most vulnerable. This is stated in hypothesis form as follows:

H_{2b}: There will be a significant language x explanation interaction because, while both a literal message and

a metaphor message with explanation will be more effective than their explanationless counterparts in producing desired attitude change, the impact of the explanation will be greater in the metaphor condition than in the literal condition.

Osgood

The associative bond model of metaphor does not consider the verbal environment of a trope. There is no reason to predict an interaction of explanation with language. This constitutes a null hypothesis:

H_{2c}: There will not be a significant language x explanation interaction.

Language x Trials Interaction (A x D)

It is assumed that whatever attitude change is produced by a single persuasive message normally decays with time.

Osborn

Osborn argued that metaphor is memorable (1963, p. 308). The argument was based on discussions of metaphor's novelty (error-recoil) and the imagery it evokes. This suggests that time should affect differently attitude change produced by literal language and attitude change produced by metaphoric language; the following hypothesis is indicated:

H_{3a}: There will be a significant language x trials interaction because attitude change induced by metaphoric language will resist decay to a greater degree than attitude change induced by literal language.

Piaget

The assimilation-accomodation model does not extend naturally into the area under discussion. The view that metaphor evokes radical assimilation at a psychologically deeper level than affected by literal language does, however, seem consistent with the hypothesis (H_{3a}) derived from Osborn's work.

Osgood

The associative bond model does not address the question of memorability. There is no reason to predict a significant interaction. The null hypothesis may be stated as follows:

H_{3b}: There will not be a significant language x trials interaction.

Evaluative Tension (E)

The concepts evoked by two different words differ in several ways, one facet of the difference being an evaluative dimension (Underwood, 1966, p. 203). When two concepts are linked in a metaphor the perceived evaluative discrepancy may be called evaluative tension.

Evaluative tension may be favorable, neutral, or unfavorable in terms of the source's purpose. The speaker who asserts that "suspicion is quicksand" intending to oppose suspicion might discover that his auditors find quicksand more attractive, equally attractive, or less attractive than suspicion. Evaluative tension will be called positive if consistent with the goals of the source and negative if counter to them. To take as an example the audience for the speech opposing suspicion, the possible audience evaluative patterns (quicksand more attractive, equally attractive, or less attractive than suspicion) would be defined as negative, neutral, and positive.

Osborn

The error-recoil-resolution model implies that greater tension (up to a point) yields greater attitude change. If incomprehensible tropes can be eliminated greater absolute amounts of tension, whether positive or negative, should be associated with greater amounts of desired attitude change, the absence of tension being associated with the smallest amounts of change. In addition, negative tension should be associated with greater amounts of desired attitude change than positive tension; negative tension should be more stressful because of its apparent incongruity with the message as a whole. This suggests the following hypothesis:

H_{4a}: Evaluative tension will correlate significantly with attitude change; the relationship will be linear and quadratic. Negative tension will be associated with

greater amounts of desired attitude change than will positive tension; larger amounts of tension, whether positive or negative, will be associated with larger amounts of desired attitude change.

Piaget

According to the assimilation-accomodation model the effects of metaphor are attributable to assimilation and accomodation triggered by the trope. This process is not, however, entirely free from the affective impact of metaphoric subject and item--the radical assimilation (which is pruned into socialized attitude change by accomodation) is initally guided by the auditor's concepts of subject and item. The following hypothesis is suggested:

H_{4b}: Evaluative tension will correlate significantly with attitude change; the relationship will be linear. Positive tension will be associated with larger amounts of desired attitude change; negative tension, with smaller amounts of desired attitude change.

Osgood

Viewing metaphor as an associative bond implies that post-manipulation evaluations of subject and item should tend to converge. This means that negative tension should produce undesired attitude change. The following hypothesis is indicated:

H_{4c}: Evaluative tension will correlate significantly with attitude change; the relationship will be linear. Positive tension will be associated with desired attitude change; negative tension, with undesired attitude change.

Credibility as Dependent Variable

The primary dependent variable for this study was attitude change. Posttests of perceived source credibility were also administered to test hypotheses concerning credibility in an after-only design.

Language and Credibility

Osborn argued that metaphor should enhance source credibility (1963, p. 304). Research has not provided consistent

support for this notion. Bowers and Osborn (1966) found that in comparison with literal speech conclusions a "sex metaphor" significantly increased a source's perceived ingenuity, but that a "death metaphor" significantly decreased perceived ingenuity, trustworthiness, and competence. McCroskey and Combs (1969) in a study of two types of extended simile (which they called analogy) found no significant credibility effects (authoritativeness, character, dynamism) for figurative language in comparison to non-figurative language. Reinsch (1971), using combinations of four metaphors and four similes to operationalize figurative language in comparison to literal language, did not observe a significant credibility effect (authoritativeness, character, dynamism). The Bowers-Osborn results suggest the following hypothesis:

H_5: Figurative language will differ from literal language in its effects on perceived source credibility.

Item and Credibility

Bowers and Osborn (1966) suggested three possible explanations for the complex source credibility results they achieved. One possibility was that sex as the metaphoric item for association may have been intrinsically attractive to college students, and that death as metaphoric item may have been intrinsically repulsive. This implies that the attractiveness of a metaphoric item may affect an auditor's perception of source credibility. This analysis suggested an experimental hypothesis as follows:

H_6: Evaluations of the metaphoric item for association will correlate significantly with source credibility ratings; positive ratings being associated with higher credibility, negative evaluations with lower credibility.

METHODS AND PROCEDURES

Instruments

Two sets of seven-space, bi-polar adjective scales were prepared, a set of six evaluative scales and a set of nine credibility scales. The evaluative scales consisted of the following adjective pairs: right-wrong, useful-useless, good-bad, beneficial-harmful, positive-negative, valuable-worthless. Scores were derived by summing across the scales.

Scores had a potential range from 6 to 42; the hypothetical midpoint was 24. The credibility scales consisted of three authoritativeness and three character scales from McCroskey (1966) with three dynamism scales from Berlo, Lemert and Mertz (1966). Scores were derived for each dimension by summing across the three relevant scales. Scores had a potential range from 3 to 21; the hypothetical midpoint was 12.

Preparation of Manipulations

The experimental manipulation consisted of a credibility induction coupled with one of four experimental messages or a dummy (control) message. The experimental messages consisted of a basic literal message into which was inserted a metaphor, a literal paraphrase of a metaphor, or neither, or both. The experimental topic, metaphor, message, paraphrase, and credibility inductions were accepted after preliminary testing with subjects comparable to the experimental subjects. All manipulations and tests were administered as mimeographed booklets.

Topic

Attitudes toward 12 topics were surveyed (n = 37). Attitudes were measured with the evaluative scales. Two topics were judged acceptable on the criteria that responses were skewed so that a single message would call for attitude change from most subjects. Selection of the experimental metaphor subsequently determined that the experimental topic would be: the expenditures of candidates for President of the United States should be substantially restricted. Most subjects favored the proposal.

Metaphor

In an earlier study (Reinsch, 1971) tropes were screened for clarity and triteness respectively by asking two questions: (a) Do you understand the meaning of this metaphor?; (b) Did this metaphor impress you? Questions were answered on a seven-space, bi-polar adjective scale. Only those tropes were used which attained a mean rating in excess of 4.5 on a 7.0 scale. For this study the scale and criteria were maintained but the questions altered.

The original question used to check for clarity focused on the message recipient rather than the source. A positive rating might indicate a feeling that the rater could "make

something out of" a trope rather than a feeling that the source's meaning was clear. The original question used to check for triteness seemed, in retrospect, to ask for judgments of both triteness and effectiveness. After preliminary testing revised versions of the questions were adopted: (a) Do you feel you understand what the writer meant by this metaphor?; and (b) Has this metaphor been overused? In evaluating eight metaphors, correlations between ratings on the original clarity question and ratings on the revised clarity question ranged from .67 to .97 (n = 30). In evaluating six metaphors, correlations between ratings on the original and the revised triteness questions ranged from .20 to .53 (n = 20).

A brief persuasive message was drafted for each of the potential experimental topics. From these drafts metaphors were generated. Metaphors were generated and screened until three acceptable tropes had been accumulated. The potential experimental metaphors were (n = 20): a majority vote is a political bulldozer; New York State is a political Joe Frazier; a Presidential campaign is a political strip tease show. Ratings on the original triteness question were also collected. None of the potential experimental tropes would have been acceptable if that question had been maintained as a criteria.

Evaluations of metaphoric items for association had been collected in the screening sessions. The evaluative scales were used. An a priori decision had been made to use the one metaphor out of three or more acceptable ones whose item's evaluative range was widest. This was intended to facilitate testing hypotheses concerning evaluative tension. On this basis it was decided that the experimental metaphor would be: a Presidential campaign is a political strip tease show. Evaluations of "strip tease show" were distributed across the entire potential range (6-42).

Message and Paraphrase

A final 212-word draft of the experimental message was written. The message was literal and opposed restrictions on Presidential campaign spending. A literal paraphrase of the experimental metaphor was also prepared.

Four speech professors screened the message and the paraphrase to insure that the message was literal and that the paraphrase accurately expressed the basic thrust of the metaphor. One evaluator felt that the negative connotation of the metaphoric item was not mirrored in the paraphrase.

Since the metaphor had been selected in part because its item was negatively evaluated by some persons, and since it did not seem possible to replicate the range of item evaluations short of the item itself, this objection was not judged to require an alteration in the paraphrase. The message and paraphrase were accepted for use. A text is preserved in Appendix A.

Credibility Inductions

After preliminary testing two final credibility inductions were prepared and tested (n = 20). Each consisted of a description, approximately 200 words in length, of a fictitious source; one was designed to induce high credibility, the other low.

An *a priori* decision had been made to accept a high credibility induction only if it attained a mean rating on each dimension in excess of 15.0; a low credibility induction, only if it attained a mean rating on each dimension of less than 9.0. The high credibility induction was acceptable on all dimensions ($\bar{A}$ = 18.8; $\bar{C}$ = 16.1; $\bar{D}$ = 18.8). The low credibility induction did not meet the criteria on dynamism ($\bar{A}$ = 7.7; $\bar{C}$ = 6.9; $\bar{D}$ = 11.1). Two factors persuaded me, however, to accept both inductions. First the experience gained in preparing the inductions argued that it is difficult if not impossible to induce low character without implying an evil dynamism. Second, one-way, matched-pair *t*-tests (Spence, Underwood, Duncan & Cotton, 1968, pp. 139-140) indicated that the inductions differed significantly in their effects (authoritativeness *t* = 2.36; character *t* = 2.04; dynamism *t* = 1.83; df = 19; $p < .05$). The inductions are preserved in Appendix B.

Subjects and Experimenters

Subjects were University of Kansas students drawn from ten sections of an introductory course in interpersonal communication, four sections of a lower division course in human relations, and two sections of a lower division course in argumentation and debate in the Spring of 1972. The pretest was completed by 286 persons of whom 207 received the manipulation and completed the immediate posttests; 163 completed the delayed posttest also. Five subjects were discarded for incomplete responses. The 16 sections from which subjects were drawn were taught by nine instructors. The instructors served as experimenters for their own sections.

Procedures

In the pretest booklet students were asked to respond on evaluative scales to the experimental topic and the metaphoric item for association. Responses constituted a pretest attitude score and a pretest item evaluation score. (Masking materials were also included in the pretest booklet.)

The manipulation booklet was administered approximately four weeks after the pretest. Students were asked to evaluate the metaphoric subject; they were exposed to a credibility induction and message; and they were asked to evaluate the experimental topic and rate the credibility of the source. Responses constituted a pretest metaphoric subject evaluation score, an immediate posttest attitude score, and a set of perceived credibility scores. Students were assigned to one of eight experimental cells or two control cells by random distribution of manipulation booklets.

The delayed posttest booklet was administered approximately four weeks after the manipulation booklet. Subjects evaluated the experimental topic; this constituted a delayed attitude posttest.

Three additional scores were derived for each experimental subject. An immediate attitude change score was derived by subtracting pretest attitude scores from immediate posttest attitude scores. A delayed attitude change score was calculated by subtracting immediate posttest attitude scores from delayed posttest attitude scores. Evaluative tension scores were calculated by subtracting metaphoric subject evaluation scores from item evaluation scores.

Internal Validity

Credibility Inductions

Two control cells were included in the experimental design. One cell was given the high credibility induction; the other, the low credibility induction. Both control cells read a dummy message on the topic of pigeon raising attributed to an unknown fictitious source before filling out the standard credibility posttest. Posttest credibility scores provided a test for the effectiveness of the induction in the experimental setting. One-tailed t-tests revealed significant differences on each dimension (authoritativeness t = 25.04; character t = 7.58; dynamism t = 2.62;

df = 44; p.<.05).

Manipulation

A harmonic-n, one-way Analysis of Variance of pretest attitude scores for the eight experimental cells and two control cells was performed. There were no significant between-group differences (F = 1.169; df = 9/194). An identical test of immediate posttest attitude scores did reveal significant between-group differences (F = 3.609; df = 9/194; p.<.05). Inspection of the posttest attitude means showed that the experimental cells differed from the control cells in the predicted direction. The difference, when tested with the F-ratio procedure described by Kirk (1968, pp. 81-82), was significant (F = 15.56; df = 1/194; p.<.05).

Pretest Differences

Pretest scores and evaluative tension scores were examined with harmonic-n, one-way Analyses of Variance. Results indicated that there were no significant pre-manipulation between-group differences among the eight experimental cells in attitude toward the topic (F<1; df = 7/150), evaluation of the metaphoric item (F<1; df = 7/150), evaluation of the metaphoric subject (F = 1.82; df = 7/150), or evaluative tension (F<1; df = 7/150).

RESULTS AND DISCUSSION

Hypotheses for this study may be divided into four categories: the effects on attitude change of language, credibility, explanation and trials; the relationship between evaluative tension and observed attitude change; the effects of language on perceived source credibility; and, the relationship between evaluation of the metaphoric item and perceived source credibility.

Language, Credibility, Explanation, Trials, and Attitude Change

Four independent variables were manipulated: language, credibility, explanation and trials. From each theoretical perspective a set of predictions was generated concerning the effects of the four variables on attitude change; each set constituted a distinctive profile of predicted first-order interactions. Attitude scores were tested for between-

group differences with an harmonic-n, four-way, repeated measures Analysis of Variance (see Table 1).

Table 1
Harmonic-n, Four-Way, Repeated Measures Analysis of Variance: Attitude Change Scores

	credibility	explanation	literal	metaphor
immediate change	low	no	-5.72*	-1.19
	high	no	-3.44	-7.94
	low	yes	-1.92	-5.75
	high	yes	-5.31	-6.47
delayed change	low	no	2.50	-2.75
	high	no	-0.75	5.65
	low	yes	1.67	3.56
	high	yes	1.85	1.73

source	SS	df	MS	F
Between	5271.42	122	43.21	
Language (A)	3.90	1	3.90	<1
Credibility (B)	24.39	1	24.39	<1
Explanation (C)	8.56	1	8.56	<1
A x B	10.14	1	10.14	<1
A x C	18.20	1	18.20	<1
B x C	39.16	1	39.16	<1
A x B x C	3.57	1	3.57	<1
Ss/Groups	5174.43	115	45.00	
Within	19537.50	123	158.84	
Trials (D)	2477.22	1	2477.22	18.18**
A x D	58.88	1	58.88	<1
B x D	137.84	1	137.84	1.01
C x D	26.70	1	26.70	<1
A x B x D	242.13	1	242.13	1.78
A x C x D	30.28	1	30.28	<1
B x C x D	48.45	1	48.45	<1
A x B x C x D	608.51	1	608.51	4.46**
Ss x D/Groups	15674.53	115	136.30	
Total	24808.92	245		

*A negative change score represents change in the advocated direction. The potential range of change scores was from +36 to -36.

**p.<.05.

Results

As indicated in Table 1 there was a significant main effect for trials, and a significant third-order language x credibility x explanation x trials interaction. The main effect for trials was attributable to immediate attitude

change in the advocated direction ($\bar{X}$ = -4.72) which decayed with time ($\bar{X}$ = 1.68). The third-order interaction was attributable to the differential effects over time of other treatment level combinations. Under most conditions attitude scores showed immediate change which faded with time--but there were two exceptions. Under conditions of high credibility without explanation the literal message produced immediate change ($\bar{X}$ = -3.44) which did not decay with time ($\bar{X}$ = -0.75). Under conditions of low credibility without explanation the metaphor message had a pronounced "sleeper effect"; after relatively little initial change ($\bar{X}$ = -1.19), delayed change was more than twice as large ($\bar{X}$ = -2.75). Inspection suggested that this sleeper effect was the major contributor to the interaction.

Multiple t-tests (Kirk, 1968, pp. 73-74) were used in a posteriori comparisons for literal-metaphor differences within other treatment level combinations. There were no statistically significant differences.

Discussion

Results did not fit any of the prediction profiles. Although methodological problems discussed later must qualify any conclusions it would appear that a more sophisticated theoretical formulation is required. Such a formulation could be a refinement and extension of one of the perspectives considered in this paper. Five possible directions in which such refinement might progress are mentioned below. These notions, while admittedly post hoc, may serve to guide future research.

One possibility is that the rhetorical functions of metaphor differ depending on the stimulus field in which the trope is embedded. Under conditions of low source credibility without explanation metaphor may serve as a mnemonic rather than persuasive device, retaining the argument in the mind of the receiver and enhancing its cumulative effects.

A second possibility is that metaphor functions as argument (Osborn, 1963, pp. 310-317). A metaphor may be viewed as a belief claim supported by data (similarities between subject and item) which may be presented explicitly as proof in the form of extensions; the warrant being the auditor's criteria of appropriateness. This view suggests that immediate acceptance of a metaphoric argument is dependent either on sufficient source credibility, or upon sufficient proof (extension). Under conditions of low credibility without explanation (i.e., without extension) metaphoric argumentation may not be accepted until the passage of time dissociates

the argument from its source.

Another possibility is that metaphor is perceived as excessively intense in some circumstances. Bowers (1963) suggested that extreme intensity may produce a boomerang effect. If, as seems reasonable, perceived intensity is in part a function of the surrounding stimulus field a metaphor may be perceived as much more intense under conditions of low credibility without explanation than if either a paraphrase is present or the source's credibility is high. A metaphor perceived as excessively intense might gain in effectiveness as, with the passage of time, it became dissociated from the message source and other elements of the original stimulus field.

A fourth possibility stems from reconsideration of the perspective derived from Piaget. It was suggested earlier that a crucial variable in shaping the effects of accomadation may be who serves as reference person. It was further suggested that source credibility might provide one indication of the relative importance of the message source as a reference person. It may also be that an explanation serves to facilitate use of the source as reference by making his position clear. Receivers may typically accomodate their thinking to the message source if his credibility is high enough to move them to seek out his meaning or if his meaning is made explicitly clear. Subjects exposed to a message from a low credibility source without an explanation of the metaphor may lack an understanding of source intent and may not be motivated to seek one; in subsequent interaction their classmates may serve as reference persons producing, if the message was effective with the classmates, delayed attitude change.

A final possibility, and the one which I prefer, involves reconsideration of the perspective derived from Osborn. It may be that the particular combination of trope and credibility induction produced, in the absence of clarifying paraphrase, a state of extremely high tension, requiring additional time for resolution. The notion that higher tension may require more cognitive work and, therefore, more time for resolution is clearly implied in the error-recoil-resolution model (Osborn & Ehninger, 1962, p. 231; Osborn, 1963, p. 220). It remains only to show that such tension likely occurred in the low credibility without explanation condition. The low credibility source was described as a "preacher for the Church of the True Revelation." The induction suggested that the source was rigidly fundamentalist and conservative. The experimental speech was intended to portray a favorable image of Presidential campaigns and included the trope "a Presidential campaign is a political

strip tease show." Given typical assumptions concerning the attitudes of fundamentalist preachers toward strip tease shows the use of the item "strip tease show" in a way apparently intended to call forth favorable associations probably came as quite a shock. The extreme tension thus created may have required additional time for successful resolution, delaying attitude change at least until after the immediate posttest. A literal paraphrase following the metaphor presumably serves to relieve the tension without the lengthy delay.

These five suggestions are not altogether mutually exclusive. In common they share the assumption that the rhetorical metaphor is field dependent, the nature of its effects shaped by the stimulus field in which it is embedded. They do, however, indicate differing foci for future research.

Two additional things should be noted in the obtained results. First, the absence of decay for the literal message under conditions of high credibility without explanation remains a puzzle. Unintentional reinstatement of the source which might have accounted for such an effect seems unlikely since subjects in this cell were randomly distributed among subjects in the other experimental cells. I can offer no explanation for the finding. Second, a generalized sleeper effect for the low credibility source was not observed. It appears that in general the impact of the brief experimental message was too slight to overcome normal decay.

Methodological Problems

Two methodological problems did emerge which may have had a minor impact on the observed results. First, the experimental metaphor may have been a relatively ineffective trope. A significant effect for figurative language did not emerge in the *a posteriori* *t*-tests under any condition. As noted previously the metaphor used in this study would not have been acceptable by the criteria of the Reinsch (1971) "triteness" question which may tap both triteness and effectiveness. Also, the experimental metaphor included a qualifying adjective, which may have functioned in the same way as the "like" or "as" of simile, in describing the metaphoric item for association: "a Presidential campaign is a *political* strip tease show." These factors suggest that the experimental metaphor may have been less effective than desired. Second, a possible problem was noted with regard to testing the memorableness of metaphoric langauge. Since introduction of a metaphor into a message usually produces

greater immediate attitude change (i.e., more extreme scores) there may be an artifactual proclivity for metaphor-induced persuasion to decay more rapidly than persuasion induced by literal language. This suggests that weak mnemonic effects for metaphor may be difficult to detect.

Tension and Attitude Change

A significant correlation between evaluative tension and attitude change was predicted from each theoretical perspective: predictions differed in type and direction of the predicted relationship.

Results

Hypotheses were tested using the procedures described by Kirk (1968, p. 126). Subjects who had been exposed to figurative language were sorted into five equal-interval groups on the basis of their evaluative tension scores. Taking tension scores as the independent variable the groups were compared with a one-way Analysis of Variance for differences in both immediate and delayed attitude change. Trend analysis would have permitted testing for linear, quadratic, and higher-order relationships. The F-ratio was insignificant both with immediate change as dependent variable ($F<1$; $df = 4/79$) and with delayed change as dependent variable ($F<1$; $df = 4/59$). Trend analysis was judged inappropriate.

A posteriori Pearson product-moment correlations were calculated for subjects within each credibility x explanation condition. Correlations of evaluative tension and immediate change were as follows: low credibility without explanation, $r = .391$, $df = 21$; high credibility without explanation, $r = .110$, $df = 20$; low credibility with explanation, $r = -.072$, $df = 20$; high credibility with explanation, $r = -.024$, $df = 15$. The correlation achieved in the low credibility without explanation condition was tested for significance by converting it to a t-score (Hays, 1963, p. 529). The resultant t-score fell short of conventional levels of significance ($t = 1.942$; $df = 21$; $p.<.10$; two-tailed test). Correlations of tension with delayed change were as follows: low credibility without explanation, $r = -.198$, $df = 14$; high credibility without explanation, $r = .019$, $df = 15$; low credibility with explanation, $r = -.192$, $df = 14$; high credibility with explanation, $r = -.208$, $df = 13$.

A posteriori tests for quadratic trends within treatment level combinations were not conducted. The number of subjects within each cell was small, and examination of scatter-

plots suggested that to conduct such tests was pointless.

Discussion

Results did not provide significant support for any of the predictions. The findings suggest there may be no general relationship between evaluative tension and attitude change. The near significant effect under conditions of low credibility without explanation did provide directional support for the linear trend predicted from the error-recoil-resolution model (H_{4a}) and suggests that significant relationships might emerge under certain conditions. However, a serious methodological problem discussed below renders any conclusion highly tenuous.

Methodological Problems

In discussing evaluative tension an implicit assumption was made--that evaluation of the metaphoric subject was related in an orderly way to attitude toward the experimental topic. This assumption was not clearly recognized prior to completion of the study. To test this assumption a Pearson product-moment correlation was computed for metaphoric subject evaluations and pretest attitude scores. The correlation was insignificant and surprisingly small ($r = -.101$; $df = 156$). This suggests either that subject evaluation has no relationship with attitude toward the topic or that the relationship is a complex one involving intervening variables at present unidentified. Part of the difficulty may also be accounted for by the fact that experimental subjects probably did not respond to the attitude pretest and the metaphoric subject pretest within the same psychological context. The two tests were separated by approximately four weeks.

Language and Credibility

On the basis of the Bowers and Osborn (1966) results it was predicted that the two levels of language would differently affect the source credibility scores collected in an after-only design. Each dimension (authoritativeness, character, dynamism) was analyzed with an harmonic-n, three-way Analysis of Variance. Authoritativeness results which are reported in Table 2 show a single significant effect attributable to the different credibility inductions. The "high" induction yielded a mean score of 15.30; the "low", a mean score of 8.50 (both on a 3 to 21 scale).

Table 2
Harmonic-n, Three-Way Analysis of Variance:
Authoritativeness Scores

source	SS	df	MS	F
Between				
Language (A)	1.82	1	1.82	<1
Credibility (B)	1792.04	1	1792.04	178.77*
Explanation (C)	18.08	1	18.08	1.80
A x B	26.33	1	26.33	2.63
A x C	14.16	1	14.16	1.41
B x C	.76	1	.76	<1
A x B x C	1.17	1	1.17	<1
Within	1503.61	150	10.02	
Total	3434.84	157		

*p.<.05.

Character scores, likewise, showed a single significant effect attributable to the inductions. The "high" induction produced a mean rating of 14.34 while the "low" induction produced a mean rating of 9.64. Results are reported in Table 3.

Table 3
Harmonic-n, Three-Way Analysis of Variance:
Character Scores

source	SS	df	MS	F
Between				
Language (A)	.36	1	.36	<1
Credibility (B)	858.42	1	858.42	137.47*
Explanation (C)	8.20	1	8.20	1.31
A x B	7.28	1	7.28	1.17
A x C	13.21	1	13.21	2.12
B x C	21.87	1	21.87	3.50
A x B x C	4.96	1	4.96	<1
Within	936.65	150	6.24	
Total	1911.17	157		

*p.<.05.

As can be seen from Table 4 dynamism scores showed no significant effects. The "high" induction yielded a mean score of 21.21 while the "low" induction yielded a mean score of 20.30.

Table 4
Harmonic-n, Three-Way Analysis of Variance: Dynamism Scores

Source	SS	df	MS	F
Between				
Language (A)	.09	1	.09	<1
Credibility (B)	32.20	1	32.20	<1
Explanation (C)	6.37	1	6.37	<1
A x B	.73	1	.73	<1
A x C	57.95	1	57.95	<1
B x C	15.94	1	15.94	<1
A x B x C	58.77	1	58.77	<1
Within	11728.51	150	78.19	
Total	11910.89	157		

These results did not support the prediction. The findings do provide further evidence of a successful credibility induction on authoritativeness and character. Dynamism inductions were apparently too weak to persist through the manipulation.

Metaphoric Item and Credibility

On the basis of an analysis suggested by Bowers and Osborn (1966) it was predicted that perceived source credibility would be correlated with evaluation of the metaphoric item for association. Pearson product-moment correlations were computed for item evaluation scores and source credibility ratings on each dimension. In each case the correlation when converted to a t-score (Hays, 1963, p. 529) approached but did not achieve conventional levels of significance: authoritativeness and item, $r = .155$, $t = 1.42$, $df = 82$, $p < .10$; character and item, $r = .178$, $t = 1.63$, $df = 82$, $p < .10$; dynamism and item, $r = .159$, $t = 1.45$, $df = 82$, $p < .10$.

These results did not provide statistically significant support for the experimental hypothesis. They did provide directional support, indicating that additional research in this area would be advisable. It is possible that the size of these correlations would have been larger if, like the Bowers and Osborn study, the message source had extended the metaphor, that is, used the item for association repeatedly and thereby linked himself more closely to it.

CONCLUSIONS

This study was intended to compare the predictive power of three conceptualizations of the effects of the rhetorical metaphor and to test hypotheses concerning the effects of figurative language on source credibility. Predictions fell into four areas.

Predictions were generated from each of the three theoretical perspectives concerning the effects on attitude change of language, credibility, explanation and trials. Results did not support any of the prediction profiles. The results seemed to indicate a need for reconceptualization of metaphor as a field dependent variable. Five possible avenues of reconceptualization were suggested including adaptations of the perspectives derived from Piaget and Osborn. The possible use of a relatively ineffective trope was also noted.

Predictions concerning the relationship between evaluative tension and attitude change were not supported. A serious methodological deficiency, however, rendered the value of these results highly suspect. An implicit assumption that metaphoric subject evaluations and pretest attitude scores were correlated was noted--it was not supported by the data.

The prediction that language would differentially affect source credibility was not supported. Subsequent research has thus far failed to replicate the significant effects observed by Bowers and Osborn (1966).

The prediction that item evaluation would be positively correlated with perceived source credibility received directional--but not significant--support.

This study did not provide statistically significant support for experimental hypotheses. It did, however, partially achieve its goal of evaluating the validity of several theoretical perspectives with regard to the rhetorical metaphor. In retrospect all three perspectives as adapted in this paper appear deficient. The obtained significant results indicate the need for more sophisticated theoretical formulations and suggest several areas for future research.

The author wishes to acknowledge the invaluable assistance of Mary Lou McCauliff in conducting the experiment and of William L. Medley, Jr. in statistically analyzing the results. (The typist regrets omitting this note from the first page.)

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Appendix A
Experimental Message*

Candidates for President of the United States already allot most of their time to the densely populated urban areas of the East. They do not use much of their time or spend much of their money campaigning in rural, southern and midwestern states. If campaign spending is substantially restricted, candidates will further reduce their campaign efforts in less densely populated areas. Large expenditures are essential to an informative national campaign.

Presidential campaigns let the voters get to know the candidates. Presidential candidates may be little known to the public at the start of a campaign. As the weeks pass, however, the ideas, abilities and personalities of the candidates become better known. By the end of the campaign the candidates are well known to the people. At the end of a campaign the voter may feel he knows all there is to know about the candidates. A Presidential campaign is a political strip tease show. (In a Presidential campaign the ideas, abilities and personalities of the candidates are made progressively more explicit until they are almost completely known to the voter.)

Campaigns are complex events. A large campaign requires the expenditure of lots of money. Even though there is much to criticize in political campaigns, they remain essential to democratic government. It is important that all candidates be free to spend however much money is required to inform the voters. If spending is substantially restricted the able but unknown candidate will be unable to challenge the incumbent.

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*The experimental metaphor is underlined; the paraphrase is in parentheses. Different versions of the message were created by omitting one, both, or neither.

Appendix B
Credibility Inductions

High Credibility Induction

Herbert Armstead (Ph.D., 1963) is professor of Government at the University of Maryland. Before accepting his present position he directed a six-year (1963-1969) study for the Bureau of Population. Dr. Armstead and his staff examined the relationship between population distribution, campaign spending, and the campaign plans of Presidential candidates in 1964 and 1968. The study, recently published by Appelson as Demography, Money and Politics was acclaimed by the New York Times as "one of the year's most important books."

Armstead has proved himself a man of integrity. In 1967 he was one of four persons who witnessed a gang-land murder in a large midwestern city. At the trial only Armstead was willing to testify--despite what he described as "several threats against myself and my family."

With another Presidential campaign approaching it promises to be a busy year for Armstead. His speaking engagements take him all across the country to address graduate seminars, civic clubs, and even state legislatures.

He is an energetic supporter of Boys Clubs of America and a noted humanitarian.

We have secured the text of a speech by Dr. Armstead in which he discusses the merits of substantially restricting Presidential campaign spending.

Low Credibility Induction

Hogan Gore is an itinerant preacher for the Church of the True Revelation in Williamsburg, Maryland. He and his second wife still live in the same single-story frame house where he was born. Gore is a high school graduate.

The "Rev." Gore is described as a short, chubby, solomn man who usually wears gray slacks and a white sport shirt. Gore has never travelled more than 100 miles from his home. He identifies his source of information as "an Almanac."

In late 1969 Gore agreed to supply the K.U. Speech Department with one sermon manuscript per month for one full year as samples of conservative rhetoric. Gore agreed to do so for the fee of $25.00 per manuscript, on the condition that he be paid for eight months in advance. Although Gore was paid the $200.00 he requested, K.U. has thus far received only one manuscript. Gore refuses to answer letters or accept telephone calls from us. In February of 1972 a K.U. faculty member who was visiting in Maryland attempted to call upon Mr. Gore--Mr. Gore was "not at home" each time the faculty member called.

The K.U. Department of Speech Communication does not endorse Mr. Gore or Mr. Gore's ideas.

The manuscript we have from Gore discusses the merits of substantially restricting Presidential campaign spending.